CLAIMS

What is claimed is:

1. An apparatus for improved shock and vibration isolation of a circuit component utilizing solder column grid arrays to provide electrical connection to a base component, the apparatus comprising:

(a) a support frame attached to the circuit component and to the base component which supports the circuit component on the base component; and

(b) an isolation material located at a point between the circuit component and the base component such that a vibration or shock to the base component must travel through the isolation material prior to reaching the circuit component.

2. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein the point between the circuit component and the base component is at least one of the points between the support frame and the circuit component, between the support frame and the base component, or between two components of the support frame.

3. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein the isolation material is selected from the group consisting of polystyrene, visco-elastic polymer and thermo set polyether-based polyurethane.

4. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein an isolation material is additionally provided between the support frame and an additional component.

5. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein the circuit component includes a package lid and the isolation material is located at a point between the package lid and a support frame.

6. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein the circuit component includes a substrate and the isolation material is located at a point between the substrate and a support frame.

7. An apparatus for improved shock and vibration isolation of a circuit component according to Claim 1, wherein the circuit component includes a package lid, wherein the package lid or the support frame includes a protrusion which cooperates with a corresponding recess on the other of the package lid or the support frame, and wherein the isolation material is located between the protrusion and the recess.

8. An apparatus for improved shock and vibration isolation of a CGA integrated package which utilizes solder column grid arrays to provide electrical connection to a circuit board and which includes a substrate and a package lid, the apparatus comprising:

(a) a support frame attached at an attachment point to the substrate or the package lid of the integrated package and at a second attachment point to the circuit board; and

(b) an isolation material located at the attachment point of the support frame to the substrate or the package lid, or located at the second attachment point of the support frame to the circuit board such that a vibration or shock to the circuit board must travel through the isolation material at the attachment point prior to reaching the integrated circuit.

9. An apparatus for improved shock and vibration isolation of a CGA integrated package according to Claim 8 wherein the isolation material is located at both the attachment point of the support frame to the substrate or the package lid, and located at the second attachment point of the support frame to the circuit board such that a vibration or shock to the circuit board must travel through the isolation material at the attachment point prior to reaching the CGA integrated package.

10. An apparatus for improved shock and vibration isolation of an integrated package according to Claim 8, wherein the isolation material is selected from the group consisting of polystyrene, visco-elastic polymer and thermo set polyether-based polyurethane.

11. An apparatus for improved shock and vibration isolation of a CGA integrated package according to Claim 8, wherein the package lid or the support frame includes a protrusion which cooperates with a corresponding recess on the other of the package lid or the support frame, and wherein the isolation material is located between the protrusion and the recess.

12. An apparatus for improved shock and vibration isolation of a CGA integrated package according to Claim 8, wherein an isolation material is additionally provided between the support frame and an additional component, and wherein the additional component is a heat sink.

13. An apparatus for improved shock and vibration isolation of a CGA integrated package according to Claim 8, wherein the support frame is attached to the circuit board via a screw and the isolation material is located at a point between the screw and the circuit board.

14. A method of supporting a circuit component on a base component and improving the isolation of the circuit component from any vibration and shock to the base component, the method comprises the steps of:

(a) providing a support frame which supports the circuit component and attaches the circuit component to the base component; and

(b) providing an isolation material at a point between the circuit component and the base component such that a shock or vibration to the base component must pass through the isolation material before reaching the circuit component.

15. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, wherein the step of providing isolation material at a point between the circuit component and the base component includes providing the isolation material at one or more of an attachment point between the support frame and the circuit component, between the support frame and the base component, or between two components of the support frame.

16. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, wherein the step of providing isolation material includes providing a material selected from the group consisting of polystyrene, visco-elastic polymer and thermo set polyether-based polyurethane.

17. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, further comprising the step of providing an isolation material between the support frame and an additional component.

18. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, wherein the integrated circuit includes a package lid and the step of providing an isolation material includes locating the isolation material at a point between the package lid and a support frame.

19. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, wherein the circuit component includes a substrate and the step of providing an isolation material includes locating the isolation material at a point between the substrate and a support frame.

20. A method of supporting a circuit component and improving the isolation of the circuit component from vibration and shock according to Claim 14, wherein the circuit component includes a package lid, wherein the package lid or the support frame includes a protrusion, and wherein the step of providing a support frame includes providing a corresponding recess on the other of the package lid or the support frame which cooperates with the protrusion, and wherein the step of providing isolation material includes locating the isolation material between the protrusion and the recess.